

SPECIES

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New record of albatross turrid *Gemmula diomedea* Powell, 1964 (Mollusca: Gastropoda: Turridae) from Indian waters

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ABSTRACT

In this study, the Albatross turrid *Gemmula diomedea*, previously reported from the Philippines, and South China sea is recorded for the first time from Visakhapatnam, East coast of India. The present paper reports the range extension of the Albatross turrid from the Philippines and South China Sea to the Bay of Bengal in India. Detailed taxonomic descriptions, distributions and illustrations, are provided.

Keywords: Distribution, *Gemmula diomedea*, Neogastropoda, New record, East coast, India

1. INTRODUCTION

The turrids are the largest marine predatory sea snail group inhabiting a wide range of marine habitats viz. muddy substratum, coral reefs, rocky shores, and abyssal depths (Powell, 1964; Powell, 1966). The group comprises around 2990 species classified into the family Turridae, and one of the largest groups of deep-marine Caenogastropods (Rex et al., 2000; Tucker, 2004). The species under this family are minute to very large and have a worldwide distribution in every sea and ocean (Powell, 1966). In India, 110 species have been reported under 36 genera and nine families (Dey, 2016). The genus *Gemmula* Weinkauff, (1875) mainly occurs in deeper tropical waters and comprises a major group in the subfamily Turrinae (Powell, 1964), around 50 recent and 132 fossils species have been currently recognized (Tucker, 2004; Simone, 2005).

The species is diagnosed as shell fusiform, with long to the short, well-differentiated siphonal rostrum; no distinct axial sculpture, posterior sinus deep slit on peripheral region, peripheral keel (sinus rib) gemmate, the operculum is corneous with a terminal nucleus (Powell, 1966). Eight species of this genus are reported in India from different parts of the Indian water (Dey, 2016). *Gemmula diomedea* Powell, (1964), a sea snail commonly known as albatross turrid belongs to the family (Turridae and Adams, 1853). The shell is variable in shape generally fusiform with a turret-shaped spire; protoconch smooth, or elaborately sculptured. The sculptures consist of spiral cords, nodules, gemmules, or spines, and the operculum is corneous with a terminal nucleus (Powell, 1964). The

distribution of the species has been reported so far from the waters of the Philippines, South China Sea, and the Northwest Australia. This is the first record of the above-mentioned species from the Bay of Bengal, India, and provides a new distributional record.

2. MATERIAL AND METHODS

During a regular biodiversity survey around the year 1996 at the coastal site of state of the Andhra Pradesh, mainly 30 m off Village Gangavaram, Visakhapatnam, the specimen was collected by Subba Rao. The collected specimen was brought to the laboratory for further taxonomic investigations, and the photographs were taken with a Nikon Z5 camera with the Nikon AF-S VR 105mm macro lens and post-processing with Adobe Photoshop CS6 software. The specimen was measured using a Vernier caliper (0.01 mm accuracy), and the identification was carried out based on taxonomic features following (Powell, 1964; Powell, 1966). The identified shell was deposited in the National Zoological Collections of the Zoological Survey of India, Kolkata, under Reg.No.35630/10.

3. RESULTS

Systematics

Order: Neogastropoda Wenz, 1938

Superfamily: Conoidea J Fleming, 1822

Family: Turridae H Adams & A Adams, 1853

Genus: *Gemmula* Weinkauff, 1875

Species: *Gemmula diomedea* Powell, 1964

Synonyms

Gemmula congener diomedea Powell, 1964: 253, pl. 191, figs. 5, 6.

Type material

The holotype is in the U. S. National Museum, No. 238878.

Type locality

The type locality is "Albatross Station 5397, 198 fathoms, off Malocot, West Luzon Island, Philippines".

Material examined

One specimen, 30 m off Village Gangavaram, Visakhapatnam, Andhra Pradesh, India, Collected by: N.V. Subba Rao, 20th October 1996, Reg. No. NZSI M.35630/10.

Description

Shell moderately large (length 21.2 mm, width 6.6 mm), soild, elongatle-fusiform, with a tall spire, with a long anterior canal. whorls 10, a subsutural fold composed of two closely spaced gemmate cords. There are two major cords between the peripheral carina and the lower suture, with three to five threads on the severely concave shoulder and two to three weak threads in the interspaces. Body whorl with several principal cords and intermediate threads, including the neck and anterior canal. The outer lip's border is laciniated by four spiral cords that are stronger than the others and heavy, and tortuous; sculpture of a spiral made of thick, sturdy, axial threads that render all the cords to gemmate or crenulate. White with the exception of a light-brown band covering both subsutural chords.

Habitat

The species was collected from 30 m offshore.

Distribution

G. diomedea Powell, (1964), has been widely distributed and previously reported from Western Australia McEnnulty et al., (2011); Hainan Island, South China Sea Li and Li, (2008), Tan and Islami, (2021); Northern Indian Ocean (Kilburn, 1983); Indonesia Tan and Islami, (2021); Mactan Island, Panglao Island, Manila Bay, West Luzon Island, Cebu and Bohol, Philippines (Powell, 1964; Heralde et al., 2010; Yamadashima and Sakashita, 2011).



Figure 1 *Gemmula diomedea* Powell, 1964 (21.2 mm). collected from 30m off Village Gangavaram, Visakhapatnam, Andhra Pradesh, India.

India

We reported this species for the first time from Bay of Bengal, 30 m off. Gangavaram Village, Visakhapatnam, Andhra coast, India.

Remarks

Powell, (1964) described the subspecies *Gemmula congener diomedea* from Albatross Station 5397, 198 fathoms, off Malocot, West Luzon Island, Philippines. This subspecies is later considered species *Gemmula diomedea* by malacologists Abbott and Dance, (1982), Kilburn, (1983), Liu, (2008), Li and Li, (2008), Heralde et al., (2010), and reported from different parts of the Philippines, Western Australia, and the South China Sea (Table 1).

Table 1 Global distributional range of the albatross turrid *G. diomedea* Powell, 1964.

Sl. No.	Species	Location	Reference
1	<i>Gemmula congener diomedea</i> Powell, 1964	Albatross Station 5397, 198 fathoms, off Malocot, West Luzon Island	Powell, (1964), Powell, (1966)
2	<i>Gemmula congener diomedea</i> Powell, 1964	Puntoengani, Mactan Island, Philippines	Yamadashima and Sakashita, (2011)
3	<i>G. diomedea</i> Powell, 1964	Sogod, Cebu, Philippines	Heralde et al., (2010)
4	<i>G. diomedea</i> Powell, 1964	Panglao Island, Bohol, Philippines	Heralde et al., (2010)
5	<i>G. diomedea</i> Powell, 1964	Panglao, Philippines	Fedosov et al., (2011)
6	<i>G. diomedea</i> Powell, 1964	Philippines	Olivera, (2004), Puillandre et al., (2012)
7	<i>G. diomedea</i> Powell, 1964	Manila Bay, Cebu and Bohol (Philippines)	Heralde et al., (2010)
8	<i>G. (Gemmula)cf. diomedea</i> Powell, 1964	South China Sea; Philippines	Li and Li, (2008), Liu, (2008)
9	<i>G. diomedea</i> Powell, 1964	Indonesia	Tan and Islami, (2021)

10	<i>G. diomedea</i> Powell, 1964	Hainan Island in the South China Sea	Tan and Islami, (2021)
11	<i>G. diomedea</i> Powell, 1964	Philippines and Northwestern Australia	Tan and Islami, (2021)
12	<i>Gemmula cf. diomedea</i> Powell, 1964	Ningaloo, Western Australia	McEnnulty et al., (2011)
13	<i>G. diomedea</i> Powell, 1964	Ningaloo, Western Australia	McEnnulty et al., (2011)
14	<i>G. diomedea</i> Powell, 1964	30m off Gangavaram Village, Visakhapatnam, Andhra coast, India	This (Current) study

4. CONCLUSION

Members of the family Turridae are the most speciose rich group, and are widely distributed across the globe. In India, 110 species have been reported from different parts of the country. *Gemmula* is a highly speciose genus of the family Turridae with 50 valid species, distributed mostly in tropical water. In India, eight valid species were reported from different parts of the Indian water viz. *Gemmula congener congener*, *G. hombroni*, *G. gilchristi*, *G. speciosa*, *G. vargata*, *G. (Unedogemmula) deshaysii*, *G. (Unedogemmula) hastula*, and *G. (Unedogemmula) unedo* (Dey, 2017). The present study reveals the occurrence of *Gemmula diomedea* from the coastal waters of Andhra Pradesh, which is a new record from India, adds the ninth turrids to the Molluscan database, and shows the range extension of the species from the South China Sea to the Bay of Bengal Sea.

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Author Contributions

MH, SS examined and identified the species, SS, AG, TM compiled the information, illustration, and prepared the manuscript. All authors revised the draft and approved the final version of the manuscript.

Ethical approval

Albatross turrid *Gemmula diomedea* species of molluscs was used in this study. The Animal ethical guidelines are followed in the study for species observation & identification.

Informed consent

Not applicable.

Conflicts of interests

The authors declare that there are no conflicts of interest.

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Data and materials availability

All data associated with this study are present in the paper.

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